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EXAMINER

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PAPER

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Appeal 2008-0901
Application 09/835,439
Technology Center 3600

Before: TERRY J. OWENS, HUBERT C. LORIN and
STEVEN D.A. McCARTHY, *Administrative Patent Judges.*

DECISION ON APPEAL

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- 4

The Appellants appeal under 35 U.S.C. § 134 (2002) from the final rejection of claims 1, 7-11 and 27-35. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

1 The claims on appeal relate to a flexible shoe assembly of a type
2 which might be used to slideably engage a tie bar in an injection molding
3 system. (Spec. 5, ll. 29-31 and 7, ll. 26-28). Independent claim 1 is typical
4 of the appealed claims and reads as follows:

5
6 1. A molding system flexible shoe
7 assembly, comprising:
8 a body for supporting a load; and
9 a force redirector;
10 said body having (i) an upper wearing
11 surface configured to slideably engage a linearly
12 moving complimentary [sic] surface of a supported
13 member, and (ii) a lower mounting surface
14 configured to engage a complementary surface
15 within said molding system and providing
16 positioning and adjustment of said shoe assembly
17 during installation,
18 said force redirector being disposed in
19 said body in a plane below said upper wearing
20 surface and configured to redirect said force from a
21 leading edge and a trailing edge of said upper
22 wearing surface to a central area in said body,
23 said force redirector being disposed
24 substantially perpendicular to the linear movement
25 of said body.
26

27 Claims 1, 7-11 and 27-35 stand rejected under 35 U.S.C. § 103(a)
28 (2002) as being unpatentable over Schlereth (U.S. Patent 5,176,454) in view
29 of Osawa (U.S. Patent 4,941,758).¹

¹ The Appellants also appealed the final rejection of claims 1, 7, 27, 28
30, 31 and 35 under 35 U.S.C. § 102(b) as being anticipated by Faint (U.S.
Patent 4,759,452). (App. Br. 12). The Examiner's Answer withdrew this
rejection. (Ans. 2).

We AFFIRM the rejection of claims 1, 7-11 and 27-34. We REVERSE the rejection of claim 35.

ISSUES

The primary issue in this appeal is whether the teachings of Schlereth and Osawa may be combined to suggest a flexible shoe assembly including a body having an “upper wearing surface;” “a lower mounting surface configured to engage a complementary surface within said molding system and providing positioning and adjustment of said shoe assembly during installation;” a force redirector “disposed in said body in a plane below said upper wearing surface and configured to redirect said force from a leading edge and a trailing edge of said upper wearing surface to a central area in said body;” and “at least one fixation bore extending lengthwise through a lower support of said body.”

FINDINGS OF FACT

The record supports the following findings of fact (“FF”) by a preponderance of the evidence.

1. Schlereth teaches a guide carriage and a bearing block for mounting a structural element such as a displaceable part of a machine tool for linear movement along a guide rail. (Schlereth, col. 1, ll. 49-53; col. 4, ll. 40-41 and col. 4, ll. 48-54).

2. The bearing block includes a pair of apparently coplanar slits defining a first bending web capable of bending along a first bending axis parallel to the longitudinal axis of the guide rail (that is, parallel to the direction of linear movement). The bearing block also includes a pair of

1 apparently coplanar slits defining a second bending web capable of bending
2 along a second bending axis which crosses the first bending axis
3 perpendicularly. (Schlereth, col. 4, l. 54 – col. 5, l. 6 and Figs. 1 and 2).

4 3. Threaded bores appear to extend through a portion of the
5 bearing block from an exposed clamping face down as far as the slits to
6 clamp a displaceable part of a machine tool to the top of the bearing block.
7 (Schlereth, col. 4, ll. 50-54 and Figs. 1 and 2).

8 4. Rows of load-transmitting balls are provided between the
9 flanges of the guide carriage and associated lateral faces of the guide rail.
10 (Schlereth, col. 5, ll. 25-30).

11 5. Osawa teaches an axially extending guide rail and a slider
12 loosely and slidably fitted onto the guide rail. (Osawa, col. 2, ll. 29-41).

13 6. A sliding member formed of a thin plastic plate is bonded to the
14 facing surfaces of the guide rail and the slider to fill the gap between the
15 surfaces. (Osawa, col. 2, ll. 43-46). The sliding member preferably has a
16 very small coefficient of friction so that the guide rail and the slider can be
17 operated without lubrication. (Osawa, col. 4, ll. 29-34).

18 19 PRINCIPLES OF LAW

20 A claim is unpatentable for obviousness under 35 U.S.C. § 103(a) if
21 “the differences between the subject matter sought to be patented and the
22 prior art are such that the subject matter as a whole would have been obvious
23 at the time the invention was made to a person having ordinary skill in the
24 art to which said subject matter pertains.” In *Graham v. John Deere Co.*,
25 383 U.S. 1 (1966), the Supreme Court set out factors to be considered in
26 determining whether claimed subject matter would have been obvious:

1
2 Under § 103, the scope and content of the prior art
3 are to be determined; differences between the prior
4 art and the claims at issue are to be ascertained;
5 and the level of ordinary skill in the pertinent art
6 resolved. Against this background, the
7 obviousness or nonobviousness of the subject
8 matter is determined.
9

10 *Id.*, 383 U.S. at 17.

11
12 ANALYSIS

13 A. *The Rejection of Claims 1, 7-11 and 27-33 Under Section*
14 *103(a) as Having Been Obvious Over Schlereth in View of*
15 *Osawa*

16 The Examiner finds that Schlereth teaches all of the elements recited
17 in independent claim 1 and its dependent claims 7-11 and 27-33 except the
18 upper wearing surface. The Examiner further finds that:

19
20 [i]t would have been obvious to one of ordinary
21 skill in the art at the time the invention was made
22 to replace the linear bearing of Schlereth with a
23 linear bearing having a wear surface, as taught by
24 Osawa, motivation being to reduce the number of
25 components of the device thereby reducing the
26 cost and assembly time of the device.
27

28 (Ans. 4).

29 The Appellants contend that there is no motivation to substitute
30 Osawa's plastic sliding member (*see* FF 6) for the load-transmitting balls
31 taught in Schlereth (*see* FF 4) because Osawa's sliding member would be
32 less efficient. (App. Br. 22). The Appellants further argue that the

1 Examiner's rationale for modifying the guide carriage and bearing block
2 taught by Schlereth is so vague that it "would permit any reference to be
3 combined with any other reference in a 'pick-and-choose' hindsight
4 approach that the courts have found legally improper." (App. Br. 24).

5 In *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727, 1741 (2007), the
6 Supreme Court warned against confining the obviousness analysis "by a
7 formalistic conception of the words teaching, suggestion, and
8 motivation" The Court held that when an application "claims a
9 structure already known in the prior art that is altered by the mere
10 substitution of one element for another known in the field, the combination
11 must do more than yield a predictable result." *Id.*, 127 S.Ct. at 1740. Here,
12 one of ordinary skill in the art could have predicted that Osawa's sliding
13 member would provide a low friction interface (even if perhaps not a *lower*
14 friction interface) between the guide carriage and the guide rail if substituted
15 for the rows of load-transmitting balls in Schlereth's flanges. The
16 Examiner's proffer of market forces which might have driven this
17 substitution, namely, reduction in the cost and assembly time of the device,
18 reinforces our conclusion that the substitution would have been obvious.
19 See *KSR Int'l*, 127 S.Ct. at 1741 (recognizing that market demand may drive
20 design trends).

21 The Appellants also contend that there is no teaching or suggestion to
22 invert Schlereth's guide carriage and bearing block so that the plastic sliding
23 member substituted from Osawa presents an *upper* wearing surface and so
24 that the force director is disposed in a plane *below* the upper mounting
25 surface as recited in claim 1. (Reply Br. 4). We do not interpret claim 1 so
26 as to require inversion of Schlereth's guide carriage and bearing block to

1 meet the limitations of the claim. “During examination, ‘claims . . . are to be
2 given their broadest reasonable interpretation consistent with the
3 specification’ *In re American Acad. of Science Tech Ctr.*, 367 F.3d
4 1359, 1364 (Fed. Cir. 2004) (quoting *In re Bond*, 910 F.2d 831, 833 (Fed.
5 Cir. 1990)). The present specification indicates that shoe assemblies may be
6 oriented horizontally as well as vertically relative to the ground (*see* Spec.
7 13, 1. 27 – 14, 1. 12) and does limit the recited subject matter to so-called
8 “bottom shoes” which are vertically oriented relative to the ground. Hence,
9 we do not limit the terms “upper,” “lower” and “below” as used in claim 1
10 as limiting the orientation of the recited shoe relative to the ground.

11 Instead, we interpret the words “upper,” “lower” and “below” as used
12 in claim 1 broadly to recite the orientation of the upper wear surface, the
13 lower mounting surface and the force redirector relative to each other and to
14 the supported member. Given this interpretation, the plastic sliding member
15 of Schlereth’s guide carriage as modified by the substitution of Osawa’s
16 sliding member would be an “upper wearing surface” relative to the guide
17 rail even if the sliding member also faced the ground. The force redirector
18 would be “below” the plastic sliding member in the sense that the force
19 redirector would be farther from the guide rail than would be the “sliding
20 member.” When claim 1 is so construed, Schlereth’s guide carriage and
21 bearing block as modified in view of Osawa without inversion include an
22 upper wearing surface and a force director disposed in a plane below the
23 upper mounting surface as recited in claim 1.

24 The Appellants contend that Schlereth’s guide carriage and bearing
25 block as modified by the substitution of Osawa’s sliding member would not
26 have a force redirector “configured to redirect said force from a leading edge

1 and a trailing edge of said upper wearing surface to a central area in said
2 body” because the guide rail would not apply a force to the leading or
3 trailing edge of the upper wearing surface (that is, the plastic sliding member
4 substituted from Osawa) which the force redirector shifts to a central area of
5 the body. (Reply Br. 6). We interpret the language “configured to redirect
6 said force from a leading edge and a trailing edge of said upper wearing
7 surface to a central area in said body” as being broad enough to read on the
8 force redirector of at least one of the preferred embodiments appearing in the
9 drawings of the present application. *See Vitronics Corp. v. Conceptronic,*
10 *Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 2008) (claims typically are not
11 interpreted to exclude the embodiments disclosed in the specification absent
12 highly persuasive evidence to the contrary). The slots taught by Schlereth
13 appear to be configured essentially identically to each of the force
14 redirectors appearing in the present application. In addition, the slots taught
15 by Schlereth appear to be “configured to redirect said force from a leading
16 edge and a trailing edge of said upper wearing surface to a central area in
17 said body” in the same way that each of the force redirectors appearing in
18 the present application redirects such force. (*Compare* Spec. 17, ll. 21-24
19 and 18, ll. 2-10 *with* FF 2). Hence, Schlereth and Osawa teach a force
20 redirector “configured to redirect said force from a leading edge and a
21 trailing edge of said upper wearing surface to a central area in said body” as
22 that phrase is used in claim 1.

23 Finally, the Appellants contend that Schlereth fails to teach “a lower
24 mounting surface configured to engage a complementary surface within said
25 molding system and providing positioning and adjustment of said shoe
26 assembly during installation.” (App. Br. 18). The exposed clamping surface

1 of the bearing block is configured to engage a complementary flat surface.
2 The threaded bores through the exposed clamping surface (*see* FF 3) are part
3 of the configuration of the clamping surface and would provide positioning
4 and adjustment of the assembly during a putative installation.

5 On the record before us, the Appellants have not shown that the
6 Examiner erred in rejecting claim 1 under section 103(a) as being
7 unpatentable over Schlereth and Osawa. The Appellants have not presented
8 any arguments suggesting that dependent claims 7-11 and 27-33 might be
9 patentable if claim 1 were not. Therefore, the Appellants also have not
10 shown that the Examiner erred in rejecting dependent claims 7-11 and 27-33
11 as being unpatentable over Schlereth and Osawa.

12
13 *B. The Rejection of Claim 34 Under Section 103(a) as Having*
14 *Been Obvious Over Schlereth in View of Osawa*

15 The Appellants support their contention that claim 34 is patentable
16 solely by reference to arguments in support of the patentability of claim 1.
17 (App. Br. 20-21). For the reasons given in the previous section of the
18 opinion, we conclude that the Appellants have not shown that the Examiner
19 erred in rejecting claim 34 as being unpatentable over Schlereth and Osawa.

20
21 *C. The Rejection of Claim 35 Under Section 103(a) as Having*
22 *Been Obvious Over Schlereth in View of Osawa*

23 Claim 35 recites a flexible shoe assembly having a body including “at
24 least one fixation bore extending lengthwise through a lower support of said
25 body.” The Appellants contend that Schlereth and Osawa do not teach an
26 assembly with a bore extending *lengthwise* through a body of the assembly.
27 The present specification uses the term “lengthwise” consistently to refer to

1 a direction parallel to that of linear movement of the supported member.
2 (*E.g.*, Spec. 14, l. 1; 19, l. 21; 20, l. 25; and 23, l. 30). Since the term
3 “lengthwise” is used in this context consistently through the specification,
4 we interpret the term as used in claim 35 in the same context. As the
5 Appellants point out (App. Br. 21; Reply Br. 7), the Examiner has not
6 identified any teaching in Schlereth and Osawa which would suggest a bore
7 in a direction parallel to that of linear movement. The Appellants have
8 shown that the Examiner erred in rejecting claims 35 under section 103(a).

CONCLUSIONS OF LAW

11 On the record before us, the Appellants have not shown that the
12 Examiner erred in rejecting claims 1, 7-11 and 27-34 as being unpatentable
13 over Schlereth in view of Osawa. The Appellants have shown that the
14 Examiner erred in rejecting claim 35 as being unpatentable over those
15 references.

DECISION

18 We affirm the Examiner’s rejection of claims 1, 7-11 and 27-34. We
19 reverse the Examiner’s rejection of claim 35.

1 No time period for taking any subsequent action in connection with
2 this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R.
3 § 1.136(a)(1)(iv) (2006).

4
5 AFFIRMED-IN-PART
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9

10 jlb

11
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